REMARKS

Claims 23-33 were rejected under 35 U.S.C. 103(a) over information given in the Background section of the present patent application (referred to by the Examiner as "Applicant Admitted Prior Art (AAPA)"), in view of Tzannes (U.S. Patent Application Publication 2006/0188035). Applicant respectfully traverses this rejection.

Independent claim 23 recites a method for bi-directional communication. Single-carrier signals are transmitted upstream and downstream over a communication channel between DSL modems, with upstream and downstream transmission spectra that at least partly overlap. Different, respective upstream and downstream bit-loading rates are set in response to conditions on the channel.

Tzannes describes a method for adapting the system bit rate in an discrete multi-tone (DMT) system (abstract). In other words, Tzannes deals with multi-carrier signals (paragraph 0003), rather than single-carrier signals as in claim 23. Within this context, Tzannes relates to only one direction of transmission, from a transmitter to a receiver (see paragraph 0027, for example). He makes no mention of bi-directional communication, as recited in claim 23, and thus gives no hint as to any sort of relation between upstream and downstream directions or channel conditions. Therefore, the Examiner's statement in the Official Action (page 3, lines 5-7) that "Tzannes disclose[s] setting different, respective upstream and downstream bit-loading rates..." is simply wrong.

At most, Tzannes can be taken to show the use of different bit-loading rates on different DMT subchannels (Table 1), i.e., different bit-loading rates for different frequencies, all transmitted in the same direction from transmitter to receiver. Claim 23, however, recites the use of different bit-loading rates in opposing directions on the same channel with overlapping frequencies. Applicant does not deny that different bit-loading rates for different frequency channels were known in the art prior to the present invention. There is nothing in the prior art, however, that could have led the person of ordinary skill to use different bit-loading rates in opposite directions on the same channel, as recited in claim 23.

Therefore, claim 23 is patentable over the cited art. In view of the patentability of claim 23, dependent claims 24-28 are also patentable.

Notwithstanding the patentability of independent claim 23, dependent claims 24-28 also recite independently-patentable subject matter. For example, claims 27 and 28 recite

transmitting the upstream and downstream symbols at the same baud rate, despite the different bit-loading rates. In rejecting these claims, the Examiner maintained that the added limitations of claims 27 and 28 are disclosed on pages 1-3 of the Background section ("AAPA") of the present patent application. Careful review of this section, however, reveals no mention or suggestion of the baud rates at which the upstream and downstream signals are to be transmitted. Furthermore, contrary to the Examiner's assertion that there is no criticality in selection of the baud rates (page 4, lines 9-12, in the Official Action), it is critical that the upstream and downstream baud rates be the same for purposes of echo cancellation (page 4, lines 3-8, in the present patent application).

Thus, claims 27 and 28 are independently patentable over the cited art. Similar arguments may be made regarding other dependent claims, but they are omitted here for the same of brevity.

Claims 29-33 recite apparatus for bi-directional communication, which operates on principles similar to the methods of claims 23-28. Claims 29-33 are therefore patentable over the cited art for the reasons explained above.

Applicant believes the remarks presented above to be fully responsive to all of the grounds of rejection raised by the Examiner. In view of these remarks, all of the claims now pending in this application are believed to be in condition for allowance. Prompt notice to this effect is respectfully requested.

Respectfully submitted,

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Date: 2/21, 2007 By: _____

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